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Remarks

The application has cancelled the apparatus claims.

The applicant confirms the election of species I. However, for reasons to be explained it is respectfully submitted that claim 1 now on file is generic to all species since it covers matrix operations, such as forming a determinant, eigencompositions and the like.

The drawings have been amended to label Figure 1 as prior art. A new Figure 3 has been added showing the described process steps since the invention is now claimed in terms of the novel method. No new matter has been added since the illustrated steps are clearly described in the original disclosure.

The Examiner has rejected the claims under 103(a) over Ding in view of Benesty et al. As noted by the Examiner Ding does not use a cross-correlation matrix for detecting double talk and path changes.

It is admitted in the application (see paragraph [0010]) that correlation-based approaches have been adopted to detect double talk between R_{IN} and S_{IN}. The problem with the prior art is that it is generally very difficult to set suitable thresholds or else it is computationally very intensive (see background discussion in Ding). The solution proposed by the present invention, namely to form the particular defined matrix R from the signals X_0 and X_1, and then perform a matrix operation on the matrix to form a characteristic value, for example, its determinant, and then use this to determine the degree of correlation between the components of the matrix R and hence detect double talk is novel.

In particular, Benesty does not propose establishing a matrix of signals X_0 and X_1, which represent the signal from the filter and the signal from the echo path. These would be signals $\bar{y}(n), y(n)$ in Benesty, who proposes using instead $x(n)$ and $y(n)$. The fact that a computationally friendly double-talk detector can be obtained by generating a cross-correlation matrix of such signals X_0 and X_1 is clearly not taught in Ding or Benesty, either alone or in combination. A combination of Ding and Benesty would not result in the invention as now claimed. In order to render an invention obvious, each element of the claim must be found in the prior art.

The remaining objections relate to claims that have been cancelled.

Reconsideration and allowance are respectfully requested.

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Respectfully submitted,

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